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#Evidence

Migrants at Risk

Responses of Rural-Urban Migrants to the Floods of 2011 in Thailand

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Translocal Resilience Project
WORKING PAPER No. 5

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ABSTRACT
The geographical focus in studying the environmental-migration nexus has been placed mainly to the areas of origin of migrants and to the question how climate stresses functions as a push factor for out-migration. Less attention has been paid to migrants facing environmental risks in the destinations areas, particularly urban agglomerations. Metropolitan areas not only have to keep in step with the fast growth. Since metropolises are often located in delta and coastal regions, they can also show an enhanced risk for natural hazards. Therefore, this paper addresses the question of how vulnerable rural-urban migrants in the Greater Bangkok Metropolitan Area deal with urban natural disasters. The aim of this exploratory study is to capture the experiences of internal migrants with the floods of 2011. Salaya, a fast growing sub-district in Nakhon Pathom province in the Bangkok Metropolitan Area was severely inundated over weeks, also for the purpose of protecting central Bangkok. In order to identify coping strategies with the big floods in 2011 and adaptation strategies to potential future floods, 17 metropolitan migrants and 4 key informants have been interviewed in depth in Thai with the help of interpreters. To understand the motives behind distinct strategies, a focus on the concepts of translocality and riskscapes in the light of previous experiences in the places of origin was set.

KEYWORDS: Risk, Flood, Migration, Thailand, Bangkok Metropolitan Area, Adaptation

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„My hometown is very dry - there is no rain. I feel like I'm living in another world."

(Woman, originally from South Thailand, living in Bangkok Metropolitan Region since 2009)

1 Introduction

Since the 2000s there has been a growing focus on conceptualizing migration as a strategy of adaptation (McLeman & Smit, 2006; Black et al., 2011), moving away from environmentalist approaches viewing environment or its degradation as a single cause of migration (Westing, 1992; Hugo, 1996; Myers, 2002). The geographical focus has thereby mainly been placed to the areas of origin of migrants (Findlay, 2011) and less attention has been paid to migrants' livelihoods and resilience in destinations areas and their attempts to adapt to unfamiliar environmental hazards. Often times such destination areas are metropolitan urban centers, which in many countries especially in the Global South are hotspots of big societal and ecological challenges (UN-Habitat, 2011).

1.1 Bangkok: Interplay of Mass Urbanization & Natural Hazards

Unplanned mass urbanization processes and increasing vulnerability to natural hazards expose megacities to dual stresses (DePaul, 2012) which even reinforce each other. Inadequate infrastructures can intensify the risks that metropolises are facing due to their geographical characteristics. Since many metropolitan cities are located in delta and coastal regions, they naturally show an enhanced risk for natural hazards.
So does Bangkok, the political capital, financial, industrial and cultural center of Thailand. Internal migration movements in Thailand have been a common response to changes in the socio-ecological fabric of the country in the recent decades. The ongoing agrarian change, especially in Northeast Thailand can be seen from changing patterns of farming practices, complexification of traditional household structures and the role of non-farm based income and mobility in livelihoods since the 1980s (Rigg & Salamanca, 2009; Rigg et al., 2012). Primarily directed towards the capital (IOM, 2011), Bangkok underwent a massive population growth, which amounts to 14.5 million people currently living in the Bangkok Metropolitan Region (BMR) (NSO, 2010). Located in the Chao Phraya delta, Bangkok has traditionally been an aquatic settlement (Massmann, 2015) in which the inhabitants cultivated the deltaic environment according to annual overflowing of the Chao Phraya River (Chiplunkar et al., 2012). Delta development towards reduction of seasonal constraints (Lebel et al., 2010) initiated structural landform transformation, like the construction of canals (khlongs), and water became increasingly a subject to control

(Kono & Saha, 1995). Since the 1960s, Bangkok's rapidly growing population induced an enormous expansion of the city, which is characterized by uncontrolled urbanization processes and overstretched infrastructures (Massmann, 2015). By shifting paddy fields to urban dwellings (Hara et al., 2005), rebuilding traditional houses on stilts to modern townhouses and converting khlongs to streets (Massmann, 2015) water as societies' lifelines got gradually lost and increasingly became a threat for the city.

Seasonal monsoon rains and northwest Pacific tropical cyclones (Gale & Saunders, 2013) endanger Bangkok regularly to flood hazards. Land subsidence due to over extraction of groundwater (Chiplunkar et al., 2012), predictions of sea level rise (BMA et al., 2009), and an increase in basin mean precipitation (World Bank, 2009) due to climate change, pose an additional long-term challenge to the city. With 60% of built-up land area, the city is predominantly shaped by impervious surfaces, that significantly increase volume and surface runoff of rainwater and hinder shallow and deep infiltration (Saraswat et al., 2016). Furthermore, the city's location along the natural waterway creates a bottleneck in times of large upstream runoff due to heavy rainfall in northern Thailand and the Chao Phraya River basin (BMA et al., 2009) in the monsoon season. Inflow from surrounding areas, tidal effects from the Gulf of Thailand and the low gradient hinder the floodwater to drain off rapidly additionally (Chiplunkar et al., 2012; Liew et al., 2016). Urbanization, economic growth and industrial centralization increased the damage potential in number of people and economic value additionally (Lebel et al., 2011; Takeuchi, 2001).

1.2 Bangkok and the Floods of 2011

To date, water management is mostly of technocratic nature with focus on infrastructures (Marks, 2015). Since 1980, Bangkok was affected by 8 severe floods in total in 1980, 1983, 1995, 1996, 2002, 2006, 2010, 2011 (World Bank, 2009, 2012) despite the completion of two large dam projects, Bhumibol Dam (1964) and Sirikit Dam (1971), which were supposed to reduce flood risks (World Bank, 2009). Further prevention measures include the construction of flood barriers (floodwalls, dykes, road and railway embankments, elevation of buildings), measures to discharge water (pumping stations, water gates, tunnels, sewers, drainage canals), and retaining rainwater temporarily in retention basins and monkey cheeks (BMA et al., 2009). After the floods of 1983, the massive embankment of the King's Dyke was built to protect the city center by diverting floodwater to the east (Liew et al., 2016).

In 2011, years of water mismanagement, political competition and administrative decisions (Marks, 2015) culminated in a massive flood disaster, which was in Kraas words a "calamity of civilization" (2012:58). Thailand's worst flood in recent history (World

Bank, 2012) began with excessive rainfall of an early starting and powerful continuing southwest monsoon with record precipitation in March and April (Gale & Saunders, 2013). Following four tropical storms, the upstream dams Sirikit and Bhumibol exceeded their capacities in September and October (Komori et al., 2012), resulting in numerous subsequent structural breakdowns of levees, dykes and water gates (Koontanakulvong, 2014). The floodwater inundated more than six million hectares of land, caused more than 800 deaths, displaced more than 165.000 people at the peak (UN, 2011 quoted according to World Bank, 2012) and affected more than 13 million people from July through December (World Bank, 2012). In total, damages and losses were amounted to USD 46.5 billion and USD 50 billion were estimated to be needed for rehabilitation and reconstruction (World Bank, 2012).

In order to protect the capital and avoid a symbolic collapse, management actions of the Bangkok Metropolitan Administration diverted the masses of water into the northern and western areas of the BMR transforming them intentionally into retention areas (Marks, 2015; Sophonpanich, 2011). These actions not only revived urban-rural tensions and political polarization in the country (Dalpino, 2012). As Chomsri and Sherer (2013) report, industrial zones have received more flood protection and social services, leaving peripheries and marginalized groups more exposed to the incoming flood waters. Aid was also distributed unevenly, since "getting assistance depended on power relations […] social connection determined aid" (Chomsri & Sherer, 2013:496). Worsening the situation further, the residents of the BMR were left to speculate and cope in midst of vast amounts of contradictory information and instruction provided by public and online sources (Sophonpanich, 2011).

1.3 Social Cohesion in Times of Floods

Water management in the Central Plains was characterized by uncoordinated actions due to unclear responsibilities of governmental institutions (Lebel et al., 2011), causing an increasing and uneven distribution of flood risks (Marks & Lebel, 2016). Flood vulnerabilities are dependent on which side of structural flood prevention measures settlements are located (i.e. inside or outside the King's Dyke) (Marks, 2015), on district jurisdictions (Lebel et al., 2011; Limthongsakul et al., 2017), on an urban-periphery-axis (Lebel et al., 2011) and on socio-economic conditions and governance power (Marks, 2015). In the lack of an inclusive flood governance, reactionary crisis management and simplified promises of the authorities (Lebel et al., 2011) force many neighborhoods to autonomous, personalized adaptations, which in turn can shift flood risks from one location to another (Ng, 2016; Limthongsakul et al., 2017). In coping with floods, infor-

mal networks are a very valuable resource in Thailand (Ng, 2016). In 2011, social cohesion went hand in hand with a more effective flood governance and relief support (World Bank, 2012). Although collaborative coping strategies took place in rural and urban communities alike, i.e. moving household items, giving a ride in a boat, or cooking for the more vulnerable, collaborative behavior tended to be less prevalent in urban areas (World Bank, 2012). Especially in densely populated areas, i.e. close to markets, "[t]the absence of community networks further impacts the distribution of aid with greater potential for particular sub-groups to be excluded" (World Bank, 2012:225).

Characteristics of a densely populated urban environment, centralization of the economy, systematic political bias and less social cohesion are important features that shape flood risks of a metropolis like Bangkok and set them apart from rural settlements. In this context, rural-urban, or to be more specific, metropolitan migrants are a very interesting group to study scope of action of coping and adaptation strategies to challenges of urban floods in a novel environment and in the light of possible former rural flood experiences. In an exploratory approach, the project Migrants at risk seeks to assess the role of migration in coping with and adapting to natural hazards in destination areas. It therefore focuses on the experiences of internal Thai migrants in Salaya, a suburban town in Bangkok's periphery, with the big floods of 2011.

2. Conceptual Background

2.1 Habitat-Specific Riskscapes

Regarding the variety of challenges rural-urban migrants have to face when they decide to leave their homes, unknown environmental risks in destination areas (Guadagno, 2016) attract little attention. Dwellings embed humans not only in physical spaces with distinct biotic and abiotic environments, but also in specific social and economic structures that create a locally specific habitat. Disasters can "destroy or undermine life support, the resources and established arrangements for producing and distributing supplies, and the relations with the habitat and surrounding communities" (Hewitt, 1997:36). The human habitat though is neither ahistorical nor consistent over time, but a "space for developing habits" (Bastons & Armengou, 2016) based on learning and capabilities. Over time, residents thus develop certain knowledge about the individual living environment, that includes strategies of habitat-specific adaptations (Boyd et al., 2011) to environmental hazards. In times of environmental risks, local knowledge can be essential to subsist successfully (Boyd et al., 2011), as "people respond to risk in relation to their broader experiential and synthetic knowledge about the place they live in, their

expectations in terms of political power and quality of life, as well as their understanding of how the risks they are exposed to are being managed" (Sutherland et al., 2012:48).
However, migration does not proceed in an unbiased way. Migrants do carry knowledge and narratives that were being formed in their homes into a new locality, that also shape the notion of environmental risks (Sutherland et al., 2012). Following "landscapes of violence" (Hewitt, 1997:36), "riskscapes" (Sutherland et al., 2012) do not only emerge from a particular territory, but also through practices carried out (Müller-Mahn & Everts, 2013) and livelihoods embedded in a certain habitat (Hewitt, 1997). Since habitat- and livelihood-specific riskscapes influence decisions that are being made in stressful situations, they are crucial for handling risks during habitat-shocks. That way, migrants are a particular group at risk firstly, if they are unfamiliar with localized adaptation strategies and secondly, if individual riskscapes in the adjustment of a hazardous situation leads to misleading assessments and actions.
We are using the habitat concept in this work to highlight the holistic understanding of the living environment and to acknowledge that every living environment does have specific features that set it apart from others - even if they are situated in the same country. The latter is important to consider, as not only international but even internal migrants could struggle with cultural, administrative and language barriers that increase their vulnerability to natural hazards (IOM, 2015).

2.2 Translocality

The emerging concept of translocality provides a framework to understand migrant experiences beyond common dichotomies such as rural and urban, and helps the research place an emphasis on transformation of local communities and environments (Greiner & Sakdapolrak, 2013). Mobility does not necessarily exclude migrants from their old homes. It rather "stretches the locales […] beyond places" (Sakdapolrak et al., 2016), embedding internal migrants in what is termed as translocal networks. Strong translocal linkages can offer a "diverse pool of opportunities" (Guadagno, 2016) and resources (Frayne, 2005). Increased mobility and new technology further facilitate this interconnectedness (Panagakos & Horst, 2006), and enable material and symbolic flows and circulations (Greiner & Sakdapolrak, 2013).

An ethnographic study of international migration and intergenerational dynamics in central Peru by Long (2009) calls for the need of more migration studies that capture "multiplicity and interconnectedness of different types of spatial and geographical movement and livelihoods" (Long, 2009:61). The study concludes that "[the families'] life courses intersect through the translocal dynamics of familial reproduction and change"

(Long, 2009:61). It empirically illustrates that translocality can contribute to development processes not only in places of origin and for those left behind. Reflecting on this, translocality could furthermore provide an exit to local hazard exposure and consequently decrease vulnerability of those affected in destination areas.
When the above concepts are taken together, one's translocal network could therefore shape one's riskscapes and translocal safety nets could expand coping capacities of migrants in times of environmental risks and adaptation capacities to environmental hazards in the long-term.

3. Method

3.1 Study Site

To study the interplay between population movement and urban environmental risks in the context of the floods of 2011 in Thailand, the research took place in Salaya, a sub-district of Phutthamonthon district in Nakhon Pathom province. Salaya is a popular destination for internal migrants and expands very fast. Center of people's lives is the campus of Mahidol University, which creates various sources of income, especially for small-scale businesses in the food and service sector. A train station connects to Bangkok to the east and makes way to Southern Thailand to the west. Although its fast growth is visible in numerous construction sites, one will still find green landscapes of rice paddies to the north and a Buddha park (Phutthamonthon park) to the south. Due to its low-lying positioning and as a consequence of protecting central Bangkok, like other peripheries of the BMR, Salaya was severely inundated over several weeks from the end of October until December. The population of Salaya, estimated at 2,311 households in 2011, was highly affected by the floods with varying degrees of loss and damage (Sakulsri et al., 2015).
The flood reached Salaya in two waves. On October 26th, the water masses broke in on the residents at night. One day later, Mahidol University announced urgent evacuation to its students and staff (Bangkok Post, 2011; Thailand Flood Crisis Information Map, 2011). The water initially reaches knee level until water held up by the railways breaks loose on October 29th. The second wave inundated the new and old markets and made living on the ground floor impossible in most parts of Salaya.
With its structural protections from the flood and proximity to the Salaya train station, Mahidol University acted as an aid center for food and shelter for a few nights, in addition to other buildings such as condos and public offices. Armed forces and local offices were mobilized to distribute basic needs to households during the inundated weeks. And even the crown prince and his former wife distributed aid packages to Salaya's residents.

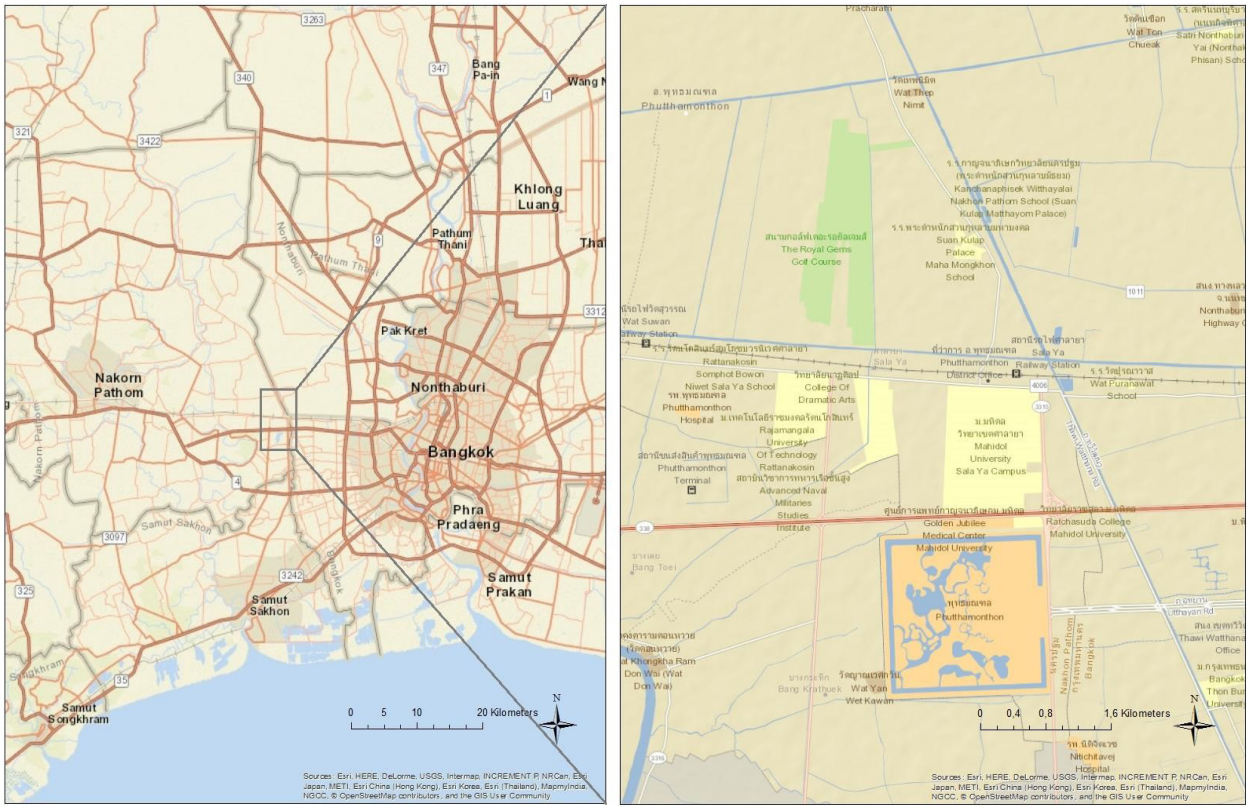

Figure1: Street map of the BMR (on the left) and Salaya subdistrict, Phutthamonthon, Nakhon Pathom province (on the right).
Source: Formatted and customized on a public street map available on http://opendata.arcgis.com/.
Base map source: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, OpenStreetMap contributors, and the GIS User Community.

3.2 In-Depth Interviews

Approaching the experiences of internal migrants residing in Salaya during the floods, in-depth interviews with 17 migrants, 4 key informants, of which 1 spontaneously was extended to a group interview of locals with 3 neighbors joining, were conducted in Thai language with the help of three local research assistants, who interpreted between the 2 interviewers and the interviewees. Interviews with local community leaders and neighborhood social workers were the starting point of inquiry in order to inform and refine the interview questions.

Potential interview participants were contacted in public spaces such as streets, markets and outside and inside the university campus and chosen according to their migration background and Salaya as place of residence. Snowball sampling was tried to be avoided if homogeneity was obvious, i.e. if interview partners recommended persons of the same region of origin.

A short questionnaire in the beginning introduced the participants to the interview

process and helped gather background information systematically. Each interview with migrants was initiated with a leading question "Can you describe me, how your daily life looked like during the floods?" to encourage narratives. The necessity of employing interpreters however hindered fluency in parts and made detailed inquiry essential. In order to enhance the communication between the researchers and participants, maps of Thailand and Salaya were used alongside the interviews.

3.3 Analysis

The English translation of the interviews was transcribed and coded in accordance to the developed theoretical framework and enriched with categories coming up during the empirical work (marked with asterisk). The categories are listed and described in Table 1. Additionally, it is also worth noting that the quotations provided below in the findings sections were structurally edited by the authors to provide preciseness.

3.4 Methodological Concerns over Political Sensitivity of the Topic

Associated with political tensions and societal polarization, the floods of 2011 is a sensitive topic, especially when it comes to governmental decisions and responsibilities. In Chintraruk and Walsh's (2016:201) words, "(t)he political divisions within the country signified by the red versus yellow conflicts were replicated within the civil service and the important institutions of the state". From a disaster governance perspective, such divisions have undermined the authorities' ability to mitigate and respond to the event. It is therefore not surprising that we often sensed discomfort when the topics start to touch upon governmental responsibilities in flood management in our interviews. Although many interviewees blamed the government for the extent of the flood disaster in 2011, when asked though about potential future flood disasters and the government's role in preventing them, many answered in the same neutral manner: "This won't happen again, because the government has learned". Few that have spoken up about the topic have done so in an indirect manner, questioning first the inability and secondly, the ineffectiveness of the responsible authorities in responding to the floods.

Since Thailand's society is still under the administration of the military junta, methodological concerns over the possible impacts of modern Thai politics on research credibility and academic freedom has in fact gained attention in a recent symposium on Thai studies (Thai Studies Symposium, 2016). In this regard, we question the reliability of the expressions we collected on the topic of governance and therefore have decided to exclude those parts from our findings.

Table 1: List of categories and operationalization used in data analysis

Categories	Operationalization of Categories
Pre-flood	
Migration history	Decisions, behavior, circumstances that lead to the distinct migration pattern/ decision
Awareness	Information related to the hazard before the hazard came and access to this information
Waiting for floods/preparation	Activities, actions taken while waiting for the floods, this can include preparations
Former experiences	Previous experiences with floods and/or any other water-related hazard
Worries and difficulties	Anticipation and worries while waiting for the floods
During the flood	
Impact/intensity of flood	How the flood started – speed and amount of water (exposure)
Coping strategies: in situ	Strategies that people follow to "overcome immediate threats by the means of those resources that are directly available " (Keck & Sakdapolrak, 2013)
Coping strategies: mobility	Mobility strategies – moving to upper floor, hometown, friends' homes, family in Salaya or other places
Support/aid/resources used to cope	Offer and use of assistance from the wider socio-political arena (civil society, governmental organizations, NGOs…) and informal support that helped deal with flood
Translocal structures	Interconnectedness, overlapping networks, social capital that helped deal with the hazard. Remote interactions that have influenced action (Greiner & Sakdapolrak, 2013)
Information on floods*	Information on the current state of the floods, water level etc. and access to this information
Attitude, perception of the floods*	Awareness, perception and sensitivity to the hazard that influenced coping strategies
Waiting for the floods to retreat	Activities/actions taken while waiting for the floods to retreat, this includes finding work outside of Salaya
Distribution of the flood	Spatial distribution of the flood water
Others/sense of community*	Awareness of the overall wellbeing/loss of the Salaya community and neighborhood during the floods and stories heard of others
After the flood	
Return and/or recovery	When and how returned to Salaya and/or how recovered
Losses and damages	Losses and damages caused by the floods. The overall cost of it where applicable
Livelihood, everyday life	Livelihoods post-flooding – occupation disruption/recovery, commuting/use of urban infrastructure etc.
Aftermath aid/support/compensation	Offer and use of assistance from the wider socio-political arena and informal support that help to deal with loss and damage
Causes of the flood – natural vs water management*	Opinions and explanations regarding the causes of floods and its intensity/level, duration
Adaptation strategy	"Measures that people employ to learn from past experiences, anticipate future risks and adjust their livelihoods accordingly" (Keck & Sakdapolrak, 2013)
Risk management	Risk management on political, community level to prevent future floods
Reflection on coping strategies/ decisions taken in 2011*	Reflection/satisfaction with coping strategies/decisions taken in 2011 in retrospect
Changes in future coping strategies/actions	Changes in behavior, planned actions to be undertaken during a potential similar hazard to decrease exposure and/or vulnerability; or same/similar actions that are planned to be undertaken during a potential similar hazard
Future floods	Opinions on the probability and/or intensity of future floods
Suggestions for the future	Direct suggestions for improvements to prevent future risks – for community, municipality and government

4. Findings

Figure 2 illustrates the regions of origin of our interviewees - Southern, Eastern, Northeast, Northern, and rural regions of Central Thailand. Background data, former experiences with floods and coping strategies of the interviewees are summarized in table 2.

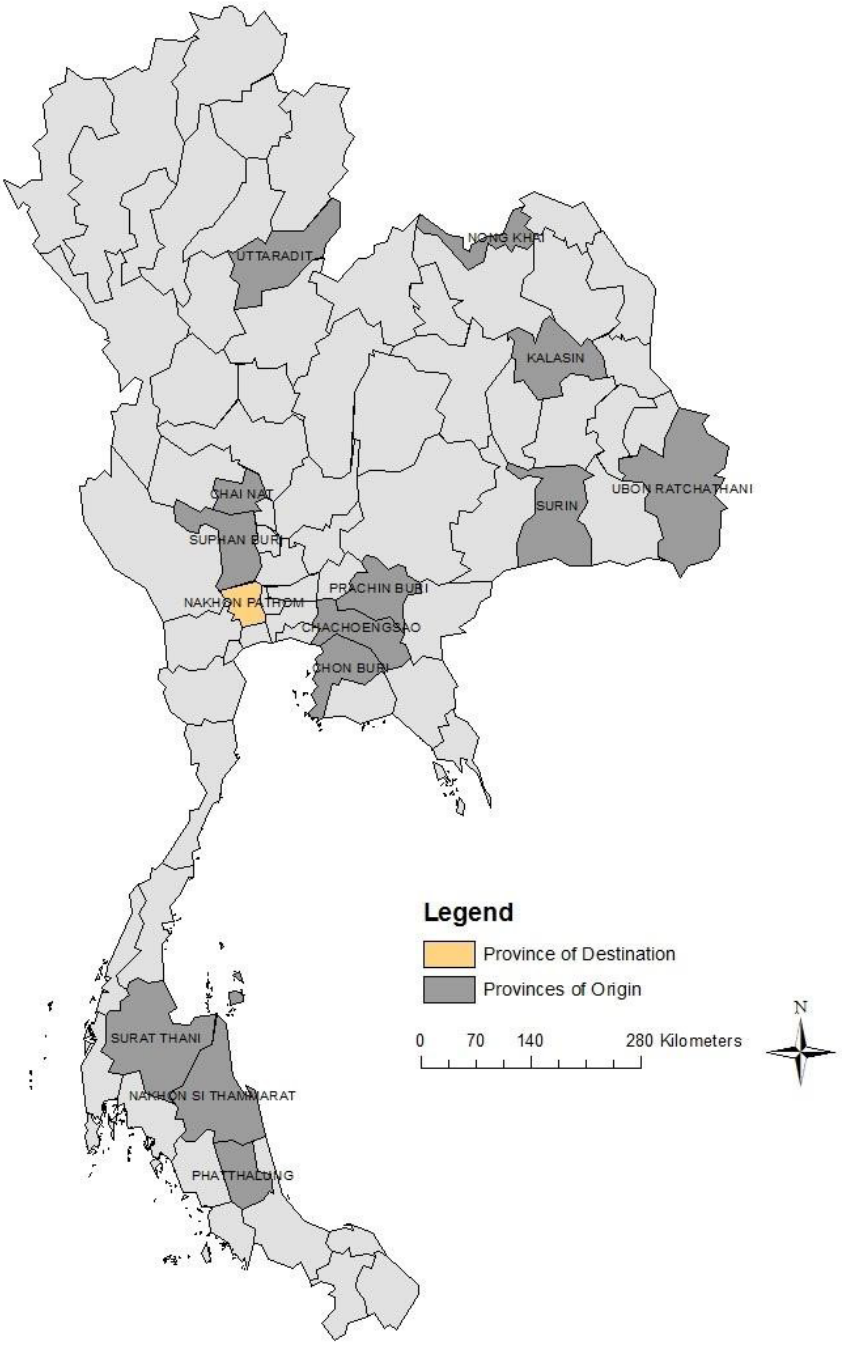

Figure 2: Map of Thailand illustrating provinces of origin (in dark grey) of research participants and province of destination - Nakhon Pathom (in light orange).

4.1 Habitat-Specific and Translocally Constructed Riskscapes

In contrast to provinces further north, the geographical location of Nakhon Pathom province gave the residents of Salaya time to follow the news on the expansion of the floods. Although most of the interviewees had been well informed about the upcoming hazard about 2 weeks before, many did not instantly anticipate that the waters would reach Salaya. It was apparent in the interviews that the information given about the extent of the floods, didn't automatically translate into adequate judgements of the situation. Confusing official statements and chaotic flood management made it certainly difficult to assess the situation appropriately. Moreover, since the causes of the floods were rooted outside of Salaya, they were neither locally visible nor naturally explainable, which impinged upon people's risk awareness additionally:

"I heard on the news but there was no rain at all." (Migrant 3)

"It was a day with sun and the [blue] sky and no rain, but the water came." (Migrant 9)

As table 3 illustrates, information alone wasn't the single factor that influenced risk perceptions. Uncoordinated actions by the authorities made it necessary to rely on individual riskscapes, which were primarily formed by former experiences. Thereby both, experiences with floods and lack of experiences played a role. Since none of the internal migrants interviewed had experienced floods in their new habitat before, two different frames of references informed their riskscapes. One was formed accordingly to the knowledge of most migrants, by which Salaya never had been affected by floods before. Especially those, who had no flood experiences at all counted on Salaya's safeness. Those, however, who were highly experienced with floods in their home provinces - primarily people coming from the South - explicitly referred to them.

However, riskscapes were not only locally constructed and habitat-specifically informed, moreover riskscapes were also influenced by translocal structures. Especially less experienced migrants integrated risk perceptions from afar in their risk assessment. Therewith although not directly affected by the floods, translocal networks brought in an outsider view that also shaped local riskscapes.

4.2 Coping Strategies: Moving in situ and Translocally

Table 2 summarizes coping strategies the interviewees have been employed during the floods. In situ actions contained lifting up belongings to elevated levels, building up stocks of vital commodities, moving upstairs, to other accommodations or to relative's or friend's homes, parking cars at secure places and in few cases implementing protection measures to the house. Although migrants with greater flood experiences were

Table 2: Outline of background data of participants, their experiences with floods and applied coping strategies during the floods of 2011

Participant	*Age Group*	*Gender*	*Home Province*	*Education*	*Migration to Salaya (year)*	*Occupation (mobile / immobile)**	*House flooded in 2011*	*Coping strategies taken during 2011 floods*	*Duration of staying away*	*Opinion about potential similar floods***
M1	40-49	f	Suphanburi	higher education	2005	Public (immobile)	no	parking car in hometown, retuning to Salaya and escaping to hometown as soon as the University closed	1 month, 10 days	within the next 20 years
M2	40-49	f	Suratthani	secondary level	2005	Business (immobile)	no	using bricks, sandbags and a pump to protect the house, building up food stocks, receiving aid packages, buying and selling boat	-	within the next 10 years
M3	50-59	f	Nakhonsrihammarat	elemetary level	2009	Business (immobile)	yes	moving stuff in 2nd floor, escaping to hometown and living on 2nd floor after returning, receiving aid packages	2 weeks	within the next 20 years
M4	20-29	f	Ubon Ratchahani	higher education	2011	Business (immobile)	yes	moving to 2nd apartment in Bangkok, going to hometown temporarily and back to apartment in Bangkok	n/a	never
M5	40-49	f	Nakhonsrihammarat	elemetary level	2009	Business (mobile)	yes	building up food stocks, moving to cousin in Bangkok, escaping to hometown and moving regularly between relatives and friends after returning	3 months	never
M6	40-49	f	Nongkhai	elemetary level	2001	Business (mobile)	yes	lifting up stuff to the roof, escaping to hometown, splitting up family and to different places	2 months	never
M7	50-59	m	Suphanburi	elemetary level	2003	Service (mobile)	yes	moving to student apartment under construction for three nights, staying for 20 days, receiving aid packages, escaping to hometown	1 month	not sure
M8	40-49	f	Utradit	secondary level	2009	Service (immobile)	yes	moving immediately to another apartment in Salaya, escaping to husband's hometown as soon as the University closed	6 months	within the next 10 years
M9	50-59	m	Nakhonsrihammarat	secondary level	1999	Business (mobile)	yes	escaping to hometown	2 months	never

M10	30-39	m	Phatthatung	higher education	2010	Public (immobile)	yes	moving from 1st to 3rd floor of the building, receiving 1 aid package, wife moving to Bangkok	-	within the next 10 years
M11	60-69	m	Chainat	higher education	2000	Business (immobile)	yes	lifting up stuff in 2nd floor and escaping to 2nd apartment in Prachuapkhirikhan province, moving to relatives in Chonburi province	1 month	within the next 10 years
M12	60-69	m	Surin	elemetary level	1986	Business (mobile)	yes	piling stuff, moving to a house on the grounds of Prince Mahidol Palace in Salaya, receiving food and boat from soldiers	-	not in this century
M13	20-29	f	Chonburi	higher education	2001	Business (mobile)	yes	moving light stuff on 2nd floor, sealing doors with silicon, splitting up family to Bangkok and Chonburi province	n/a	within the next 10 years
M14	50-59	m	Chonburi	elemetary level	2004	Service (mobile)	no	building up food stocks, staying for one month and escaping to wife's home province (Prachuapkhirikhan) to protect car	1 ½ months	never
M15	50-59	f	Prachinburi	elemetary level	2006	Business (mobile)	yes	packing clothes and food into boxes, changing lock of apartment, escaping to hometown with selling goods, a tent and blankets, moving to friend's place in Chonburi province to sell goods on the market	1 ½ months	not sure
M16	40-49	m	Karasin	higher education	1992	Public (immobile)	no	helping to protect Mahidol University from flooding with soilbags, receiving food donations and going back to hometown as soon as water level decreased	15 days	never
M17	30-39	f	Chachengsao	higher education	2008	Public (immobile)	yes	parking car at safe place, moving stuff to 2nd floor, escaping to hometown	3 months	within the next 50 years

Table 3: Migrants' risk perceptions accordingly to flood experiences

Participant	*Region*	*Former Flood Experiences*	*Risk Perception: Key Quotations*	*Risk Perception Primarily Based on / Formed by*
M1	Central	occasionally in hometown	I followed the news […] and I thought that the water will come, but I didn't think it'll come a lot or this far.	information
M2	South	regularly in hometown, Tsunami 2004	The tsunami was scarier than the floods. […] We kind of know this [situation] from back home, so we prepared.	experiences made in old habitat
M3	South	annually in hometown	In the South, we would know from the rain. If it rains, there will be floods and we can prevent. But this floodwater is no flood. I do not know where the water came from, the water just came.	experiences made in old habitat
M4	Northeast	once in hometown	My parents called me and said, oh my god, you have to move, you have to move, you have to move, like that. So, I moved […] because my parents told me so.	translocal social structures
M5	South	regularly in hometown	I have always experienced flooding in my hometown, but my home is just close to the sea. It would be flooded for two to three days, then the water is gone. […] That's why at the beginning, I didn't move from Salaya. I didn't think that it'll flood for three months.	experiences made in old habitat
M6	Northeast	once in hometown	My mum was worried about the floods. She gave me a call and asked me to come back immediately.	translocal social structures
M7	Central	none	I've lived here for more than 10 years, I never have seen this before. On the radio, the broadcast has warned us […] and it's possible that the water will flood in this area. But I myself, I didn't belief that it'll be flooded, because it wasn't happening before.	experiences made in local habitat
M8	North	occasionally in Sukhotai, once in hometown	I didn't get any information that there'll be a flood. […] There was no signal that there will be that much flood.	information
M9	South	n/a	When I've heard that the water is coming, […] I drove my motorbike to check the water level every day. I watched the news and I also wanted to check with my eyes.	information
M10	South	regularly in hometown	I didn't prepare or prevent anything, because I never thought that it'll be this much flood. […] I'm from the South, where the water comes only for a day and then goes to the sea. When I was a little kid, we just played with the water.	experiences made in old habitat
M11	Central	plenty in different parts of Thailand	From my instinct, I believed that it'll be a big flood. I was quite sure that it'll flood, so I decided to leave Salaya. And it's a good opportunity to take a break. I can go everywhere on my holidays.	higher education
M12	Northeast	n/a	I think I believed a little bit that it'll be flooded but nor severe, because in my life I never faced a severe flood like this before.	elemetary level
M13	East	none	The first province I heard [that was affected] was Phitsanulok, [and when it reached] Nakhonsawan I felt like it was really far from me. Then I heard that the water came to Pathumthani and then to Nonburi. After that, I feel okay, this is real flooding.	information
M14	East	none	I never ever thought that Salaya will be flooded. Salaya never faced floodings before. Just only a little bit after raining, just a few days and then the water is gone. I never saw it before.	experiences made in local habitat
M15	East	occasionally	I was very afraid of the floods. I didn't expect the water will come fast like that.	information
M16	Northeast	none	From my own experience that I've been living here for 20 years, I would say that the water level should not be more than five centimeters.	experiences made in local habitat
M17	East	none	The stressful [issue] during that time was, whether the water will really come or not. Because, if we knew that the water is really coming, we can evacuate. [But] I could not prepare or plan anything.	information

slightly better prepared for the floods, they likewise underestimated the event. As riskscapes in simplified terms differed between no flood and two to three days of flooding in Salaya, preparation and prevention measures had been adjusted accordingly. In the following reference, an interviewee expresses how although adequate information was given with regards to coping in situ with the coming flood, less information was provided on the intensity and the overall magnitude of the event:

"For the preparation of the flood, we've received a lot of information on the news. I think this was enough. But if there is another flood in the future [...], I want more information on the water management. The direction of the flood and amount of water that is coming." (Migrant 17)

No one was prepared for the major disaster - neither the authorities nor the population, and thus escaping the floods had become necessary for most of the interviewees at some point. Since the official flood management had been perceived as an unreliable source, only few evacuated before the waters reached their houses. In fact, most interviewees had kept working as usual as long as possible and had reacted last minute only after realizing that they couldn't maintain their livelihoods in Salaya any longer, making some preparation measures redundant:

"I made a decision to leave [Salaya] because I had no place to go, I had no place to live." (Migrant 6)

"Actually, I could live in the house but the problem was that there was no food. I did not know where to get food." (Migrant 9)

"I prepared [for the floods], but I didn't prepare to escape. I bought a lot of food, such as rice, and eggs to sell." (Migrant 5)

Nevertheless, most interviewees were still able to leave Salaya independently by car, train or bus and only a few were reliant on municipal assistance like soldiers trucks for transportation and/or other aid from the community.

What all evacuated interviewees have in common was that they profited from networks outside of the flood zones. In most cases, translocal networks consisted of family members and relatives who were still living in the migrants' hometowns, and sometimes of friends that gave shelter. When space was too small to shelter the whole evacuated family, they split up and went to different places or even provinces, accordingly to network maintenance, degree of relationship and working opportunities. Although many of the interviewees were self-employed with small, mobile businesses, such as food stands in the market, almost no one reacted fast enough to save their belongings and eventually to install it somewhere else temporarily. This meant that while migrants did evacuate to their hometowns, many were not able to generate income and had to become dependent on their savings. A woman describes how evacuating to her hometown in the South was costly - there was no way to generate an income during the three months of

floods:
"While I lived there [hometown], I had nothing to do. I just stand still for about three months. […] I had to spend a lot of money because my nephew and niece went with me, too. And I had no job, I could not earn money there." (Migrant 5)
Others who didn't own their businesses, such as employees, weren't free to leave arbitrarily and were dependent on the employer's decision. As for many in Salaya, workplaces have been more or less associated with the university campus and therefore they were reliant on its operation. In worst case scenarios, wages were not paid during breakdown of businesses and service providers.
"I wished that at least, I would get the minimum wage or have a job during the floods." (Migrant 8)
At the other end of the spectrum, those without financial worries took the flooded months as an opportunity to revive old relationships, maintain their social network and even take a vacation.
"I went back home, I didn't do anything. I was meeting old friends. I spend a lot of money with my old friends and went out at night to the market. It was fun actually, I met some of my old friends that I haven't seen for so long." (Migrant 9)
"[…] in Chonburi there were a lot of places to go to visit. […] The only bad thing about that was that I drank too much beer. One dozen of beer every day." (Migrant 11)

Since many followed the example of their local network, "everyone I know was going home, so I decided that I will go home" (Migrant 9), Salya looked "like a city without people living" (Migrant 12) at some point. Only few kept staying the whole time, either out of professional obligations (M10, M16), due to lack of monetary resources (M12) or because they were able to preserve their livelihood (M2). However, none of the interviewees remained moved into a local public shelter.
As outlined above, riskscapes and accordingly preparation measures pointed to a geographical divide into South Thailand and the rest of the country. In contrast to translocal coping strategies, which didn't indicate a distinction, in situ coping strategies revealed a certain southern, flood experienced pride that even provoked hazardous situations:
"[…] sometimes my son even went out and played in the flood water - played with the boat outside. […] when I was young I also played in the water and my mother never worried about me." (Migrant 2)
"I was thinking about [staying in a shelter] […] I would say, that if you don't have any experiences with floods, you might have to go to the shelter. But I come from the South where it is often flooded. So, I know how to handle floods and to live with floods." (Migrant 3)

4.3 Habitat-Specific Experiences in Urban Flood Disasters

As shown above, risk perceptions of the oncoming floods have to some extent been constructed by flood and "non-flood" experiences in former habitats. During the floods of 2011, the interviewees eventually have gained local knowledge about urban flood disasters in Salaya:

"I thought that our area is upland, but after the flooding I changed my mind, because our land is very low-lying." (Migrant 13)

"And the reason why the water went to many houses, was that it was stuck by the rail track, and the rural highway, because they're higher." (Migrant 9)

Besides topographical and internal habitat-specific characteristics, Salaya was indeed perceived as part of a failed water management system, which is inevitably linked to Bangkok and its densely built-up landscape:

"They [the authorities] have chosen [the periphery] to be the waterway of the floods to protect Bangkok. If we let the water go down [to the ocean], it takes two days and the water is gone. But nowadays, there is housing and a lot of buildings and roads which block the waterways." (Migrant 11)

"I think it was flooded because of two reasons. First, there are no canals for the water to drain off. And second, we haven't faced a severe flooding like this for a long time. That made our government not to prepare and they may have not believed that there will be a big flood like this." (Migrant 12)

Those experiences made in 2011 have some influence in adaptation measures to potential future floods, about which almost all participants have thought.

4.4 Adaptation to Potential Future Floods

Many interviewees have expressed that they would act differently in the future. For some, escaping the floods by returning home no longer seems as necessary as it was in 2011. Firstly, some moved to other accommodations like elevated houses in safer quarters or two-storey houses. Secondly, many would prefer to stay in Salaya, if it is flooded again. Although most of the interviewees haven't been on site when the flood waters reached its peak, many feel that they have gained enough experiences and knowledge about the progression of flood disasters in Salaya. Others refer to narratives of people who unlike them have remained in Salaya, and made the best out of the situation in a collaborative behavior:

"Next time, I would not go anywhere. I want to see. Because I've heard people saying that it was fun. Because people around here were eating together. So, actually […] [that]

was one of the good things. Some of the neighbors, they were in conflict but when it was flooded, they become friends again. Because they were helping each other." (Migrant 11)
But the main reason to stay, is the hope to be able to earn money as the head of the family, or the outlook of even benefiting from the exceptional state in financial terms:
"If it would flood again, I would live here alone […] I'm able to ride a boat. I will change my job from the motorcycle taxi to a boat taxi. During the flooding, there were a lot of people working like this. They could earn about 1.000 Baht a day […] I think I will move my children and my wife to my hometown, because they can stay and it's not difficult and sometimes, they can earn money at my hometown as well, even though it is little money." (Migrant 7)
"If it does flood again, I want to live here. I want to earn money. If I go back to the South, I will have no money left like the last time. Because when I go back […] I have nothing to do. [But] I will need help from the government, when it floods again. I need someone help me send my children back to my home, especially the young children who cannot work and help themselves." (Migrant 5)
Although many envisage further floodings in the near future, those plans didn't translate into concrete actions by now, but are supposed to be implemented right before the next disaster. Although individual adaptation measures in general were rather low to date, most of the interviewees believe to be better prepared for future floods and are able to decrease loss and damage. However, temporary migration to hometown still seem to be the best option for many:
"I'm not worried, because I now bought a house that is on higher land. And I will respond quicker than last time. I'll move my stuff before flooding and escape before the water is coming." (Migrant 13)
"This house [I'm living now] is a newly developed house and the company already used more soil to elevate it. […] [But] I think I will go back home anyways, because my parents worry about me." (Migrant 1)

5. Discussion

The flood of 2011 was a slowly enrolling danger for Central Thailand. This compound disaster – heavy rainfall coupled with water mismanagement and failed disaster management coordination – was an unpredictable threat for the residents of the BMR. In 2011, Thailand sensed a loss of control at various levels. By focusing on coping strategies of internal migrants living in Salaya, BMR, this study seeks to explore perceptions of persons who were unfamiliar with urban flood disasters back then. In doing so, the study contributes to the relevant discussion about ongoing migration-inflows into risky regions and increasing environmental hazards.

As a disaster without locally identifiable natural signs, the water masses broke in on the residents of Salaya. Although Thailand has already been in an exceptional state, all of the interviewed migrants misjudged or underestimated the situation. As shown and in accordance with Müller-Mahn and Everts (2013), riskscapes of the upcoming hazard were not only constructed by former experiences with flood disasters, but also informed by locality characteristics. Firstly, experiences made in home provinces and other parts of Thailand served as frame of reference and crucially influenced the actions taken. In doing so, the interviewees can be divided into two groups accordingly to geographical origin: highly flood experienced migrants from flood-prone areas in the South, and less, or "non-flood" experienced from the rest of Thailand. Secondly, Salaya, the new habitat, created distinct riskscapes by its own flood history. Since for most of the interviewed migrants the floods of 2011 was the first they have experienced in Salaya, they couldn't refer to any existing knowledge on flood proceedings in this particular habitat and relied on stories and learned from reactions of other inhabitants. And thirdly, the migrants' connectedness with places outside of Salaya affected the migrants risk awareness by worried relatives, who themselves depended on second source data such as the media and information available on the Internet.

Migrants without any flood experiences had most difficulties in dealing with the situation. In the lack of own experiences, their understanding of the risk strongly depended on external information (Wachinger et al., 2013), which have not been reliable due to the lack of a coordinated disaster management plan. Nevertheless, experiences alone haven't proved a recipe for being spared from misjudgment and subsequent losses and damages, since they could even trivialize the disaster, e.g. in comparing it with annually natural phenomenon (Chomsri & Sherer, 2013) in South Thailand or even with the catastrophic tsunami of 2004.

But regardless the geographical and experiential background, coping measures have been similar and consisted of movements (Bravi et al., 2017): in-situ and translocally. Besides securing belongings at elevated levels, moving out of harm's way has been the most prominent coping strategy, at the latest when livelihoods couldn't be sustained anymore. Thereby, the migrants were able to count on their kinship in their (not directly affected) home provinces. By escaping to hometowns, the places of origin have been the most important shelters. By going home, the internal migrants travelled long distances, which was notably different to documented reactions of locales as Chomsri and Sherer (2013) highlight, whose interviewees stayed to their homes as close as possible. Due to the poor disaster management by the government, lots of people were left to their own resources and finding shelter depended strongly on social networks (Chomsri & Sherer, 2013). Phongsathorn (2012) describes how displacement directed towards shelters was dependent on social and financial capacities. Our study suggests that finan-

cial worries restricted people to evacuate in the first place only, and not to distance. It became further apparent, that the migrants' networks outside of Salaya were still intact. Although community networks in urban settings during the floods of 2011 haven't been as distinct as in rural areas (World Bank, 2012), we indeed found collaborative behavior between Salaya's internal migrants. Nevertheless, translocal networks in rural areas have been much more important. Being embedded in those, internal migrants have an additional social asset, which the local community might not have. Further, knowing what kind of living conditions to expect in their hometowns could have made it easier for internal migrants to leave their new homes temporarily (Heijmans, 2001). Nevertheless, it also became visible, that relocating to the BMR implied leaving the labor market in the original community. Except of those migrants who are migrating seasonally, they weren't able to earn money in their hometowns and had to live on their savings, or received financial support from their network.

Besides social and monetary resources, escaping the hazardous zone depends on whether the urban infrastructure such as train tracks and roads are operational. Thus, for truly being an asset in disastrous situations, translocality is dependent on functioning structures that connect the locales, in physical and social manner.

Gaining knowledge about the flood in Salaya in 2011, many migrants now feel confident in staying, if Salaya is affected again in the future. Riskscapes have been adjusted to the hazardous characteristics of urban flood disasters and adaptation measures accordingly. Financial concerns were thereby some of the most important drivers that would make many of the interviewees stay. Learning that many inhabitants managed to live with the waters, in retrospect, evacuating was not a decision they were fully satisfied with anymore. Besides those who voluntarily want to or being forced to stay, many are still planning with their translocal resources in order to escape eventually. Evacuation in form of temporary migration to hometowns turns thereby from a solely coping strategy in 2011 into an adaptation strategy that is counted on in the future.

6. Conclusion

Migration to risky zones such as deltaic metropolises involves the danger of being confronted with unfamiliar environmental hazards. Even adaptations to a seemingly similar hazard can appear of being inappropriate in a new setting. Floods in highly urbanized areas not only physically proceed very differently than in rural ones, where retention areas are available, the soil is more absorptive, the duration is more or less predictable, and flood water less contaminated. But also in a social manner, when urban centers are given priority in protection measures to the periphery, creating uneven vulnerabilities along the residents. The compound flood disaster of 2011 in Thailand had the biggest

impact on the fast growing BMR. Focusing on internal migrants in one highly affected neighborhood revealed that in the lack of local flood knowledge, riskscapes were constructed accordingly to different locality characteristics, namely by former flood experiences in old homes, by the believed safeness of the new habitat and by social translocal influences. The uncontrollable character of this natural-manmade disaster made mobility the most viable coping strategy. Translocal structures of networks in hometowns have thereby proven to be a valuable coping resource to environmental disruption in places of migration destination. Were hazardous forces in 2011 the cause of temporary out-migration, outweighs for many the hope of maintaining livelihoods during a potential future flood disaster in the meanwhile. Thanks to adjusted knowledge about urban floods, migration to translocal networks becomes on the other hand a strategy which is planned with and therefore constitutes a form of adaptation.

References

Bangkok Post. (2011). A Day in Photos - Bangkok Flooding Oct 28. Retrieved October 25, 2016, from http://www.bangkokpost.com

Bastons, M., & Armengou, J. (2016). Human Habitat, Space and Place. Journal of Agri cultural and Environmental Ethics, 29(4), 559–570. http://doi.org/10.1007/s10806-016-9617-8

Black, R., Bennett, S. R. G., Thomas, S. M., & Beddington, J. R. (2011). Climate change: Migration as adaptation. Nature, 478(7370), 447–449. http://doi.org/10.1038/478477a

Bravi, A., Schaur, K., Trupp, A., Sakulsri, T., Tadee, R., Apipornchaisakul, K., & Punpuing, S. (2017): Migrants in Countries in Crisis. Thailand Case Study. Migration and Natural Disasters – The Impact on Migrants of the 2011 Floods, Vienna: International Centre for Migration Policy Development.

BMA, GLF, & UNEP. (2009). Bangkok Assessment Report on Climate Change 2009. Bangkok: Bangkok Metropolitan Administration, Green Leaf Foundation, United Nations Environment Programme.

Boyd, R., Richerson, P. J., & Henrich, J. (2011). The cultural niche: why social learning is essential for human adaptation. Proceedings of the National Academy of Sciences of the United States of America, 108 Suppl, 10918–10925. http://doi.org/10.1073/pnas.1100290108

Chintraruck, A., & Walsh, J. (2016). Bangkok and the Floods of 2011: Urban Governance and the Struggle for Democratisation. In M. A. Miller & M. Douglass (Eds.), Disaster Governance in Urbanising Asia (pp. 195–209). Singapore: Springer Singapore. http://doi.org/10.1007/978-981-287-649-2_10

Chiplunkar, A., Kallidaikurichi, S., & Cheon, K. T. (2012). Good Practices in Urban Water Management: Decoding Good Practices for a Successful Future. Mandaluyong City, Philippines.

Chomsri, J., & Sherer, P. (2013). Social Vulnerability and Suffering of Flood-Affected People: Case Study of 2011 Mega Flood in Thailand. Kasetsart J. (Soc. Sci), 34, 491–499.

Dalpino, C. (2012). Thailand in 2011 - High Tides and Political Tensions. Asian Survey, 52(1), 195–201.

DePaul, M. (2012). Climate Change, Migration, and Megacities: Addressing the Dual Stresses of Mass Urbanization and Climate Vulnerability. Paterson Review of International Affairs, 12, 145–162.

Findlay, A. M. (2011). Migrant destinations in an era of environmental change. Global Environmental Change, 21(1), 50–58.

Frayne, B. (2005). Survival of the Poorest: Migration and Food Security in Namibia.

In L. J. A. Mougeot (Ed.), Agropolis: The Social, Political and Environmental Dimensions of Urban Agriculture (pp. 31–50). London: Earthscan.

Gale, E. L., & Saunders, M. A. (2013). The 2011 Thailand flood: climate causes and return periods. Wheather - September 2013, 68(9), 233–237.

Greiner, C., & Sakdapolrak, P. (2013). Translocality: Concepts, applications and emerging research perspectives. Geography Compass, 7(5), 373–384. http://doi.org/10.1017/CBO9781107415324.004

Guadagno, L. (2016). Human Mobility in the Sendai Framework for Disaster Risk Reduction. International Journal of Disaster Risk Science, 7(1), 30–40. http://doi.org/10.1007/s13753-016-0077-6

Hara, Y., Takeuchi, K., & Okubo, S. (2005). Urbanization linked with past agricultural landuse patterns in the urban fringe of a deltaic Asian mega-city: A case study in Bangkok. Landscape and Urban Planning, 73(1), 16–28. http://doi.org/10.1016/j.landurbplan.2004.07.002

Heijmans, A. (2001). Vulnerability: a Matter of Perception. Disaster Management Working Paper (Vol. 4). London.

Hewitt, K. (1997). Regions of Risk: A geographical introduction to disasters. Harlow.

Hugo, G. (1996). Environmental Concerns and International. International Migration Review, 30(1), 105–131.

IOM (International Organization for Migration). (2011). Thailand Migration Report 2011. (J. W. Huguet & A. Chamratrithirong, Eds.). Bangkok: International Organisation for Migration, Thailand Office.

IOM (International Organization for Migration). (2015). World Migration Report 2015. Migrants and Cities: New Partnerships to Manage Mobility. Geneva: Internation al Organization for Migration. Retrieved from http://publications.iom.int/system/files/wmr2015_en.pdf

Keck, M., & Sakdapolrak, P. (2013). What is social resilience? lessons learned and ways forward. Erdkunde, 67(1), 5–19. http://doi.org/10.3112/erdkunde.2013.01.02

Komori, D., Nakamura, S., Kiguchi, M., Nishijima, A., Yamazaki, D., Suzuki, S., … Oki, T. (2012). Characteristics of the 2011 Chao Phraya River flood in Central Thailand. Hydrological Research Letters, 6(0), 41–46. http://doi.org/10.3178/hrl.6.41

Kono, Y., & Saha, P. K. (1995). Land and water resorces management for crop diversification in the Chao Phraya delta, Thailand: A case study of citrus cultiva tion in the north Rangsit irrigation project. Southeast Asian Studies, 33(2), 169–186.

Koontanakulvong, S. (2014). The Chao Phraya floods 2011. Extreme Natural Hazards, Disaster Risks and Societal Implications.

Kraas, F. (2012). Das Hochwasser 2011 in Bangkok. Geographische Rundschau, 64(1), 58–61.

Lebel, L., Lebel, P., & Daniel, R. (2010). Water insecurities and climate change adaptation in Thailand. In Climate Change Adaptation and Disaster Risk Reduction: An Asian Perspective (Vol. 5, pp. 349–372). http://doi.org/10.1108/S2040-7262(2010)5

Lebel, L., Manuta, J. B., & Garden, P. (2011). Institutional traps and vulnerability to changes in climate and flood regimes in Thailand. Regional Environmental Change, 11(1), 45–58. http://doi.org/10.1007/s10113-010-0118-4

Liew, S. C., Gupta, A., Chia, A. S., & Ang, W. C. (2016). The flood of 2011 in the lower Chao Phraya valley, Thailand: Study of a long-duration flood through satellite images. Geomorphology, 262, 112–122. http://doi.org/10.1016/j.geomorph.2016.03.022

Limthongsakul, S., Nitivattananon, V., & Arifwidodo, S. D. (2017). Localized flooding and autonomous adaptation in peri-urban Bangkok. Environment & Urbanization. http://doi.org/10.1177/0956247816683854

Long, N. (2009). Translocal Livelihoods, Networks of Family and Community, and Remittances in Central Peru. In J. DeWind & J. Holdaway (Eds.), Migration and Development Within and Across Borders: Research and Policy Perspectives on Internal and International Migration (pp. 39–70). Geneva and New York: International Organization for Migration and Social Science Research Council.

Marks, D. (2015). The Urban Political Ecology of the 2011 Floods in Bangkok: The Creation of Uneven Vulnerabilities. Pacific Affairs, 88(3), 623–651.

Marks, D., & Lebel, L. (2016). Disaster governance and the scalar politics of incomplete decentralization: Fragmented and contested responses to the 2011 floods in Central Thailand. Habitat International, 52, 57–66. http://doi.org/10.1016/j.habitatint.2015.08.024

Massmann, F. (2015). Hochwasser in Bangkok: Verwundbarkeiten und Handlungsstrategien von Bewohnern. Kiel: Im Selbstverlag des Geographischen Instituts der Universität Kiel.

McLeman, R., & Smit, B. (2006). Migration as an adaptation to climate change. Climatic Change, 76(1), 31–53. http://doi.org/10.1007/s10584-005-9000-7

Müller-Mahn, D., & Everts, J. (2013). Riskscapes: the spatial dimensions of risk. In D. Müller-Mahn (Ed.), The Spatial Dimension of Risk - How geography shapes the emergence of riskscapes. Abingdon: Routledge.

Myers, N. (2002). Environmental refugees: a growing phenomenon of the 21st century. Philosophical Transactions of the Royal Society B: Biological Sciences, 357(1420), 609–613. http://doi.org/10.1098/rstb.2001.0953

Ng, S. (2016). Governance beyond the government: Responding to a reactionary flood governance regime in Ayutthaya, Thailand. Habitat International, 52, 11–19. http://doi.org/10.1016/j.habitatint.2015.08.029

NSO (National Statistical Office). (2010). The 2010 Population and Housing Census. Bangkok.

Panagakos, A. N., & Horst, H. (2006). Return to Cyberia: technology and the social worlds of transnational migrants. Global Networks, 6(2), 109–124. Retrieved from http://doi.wiley.com/10.1111/j.1471-0374.2006.00136.x

Phongsathorn, P. (2012). Environment and Migration: The 2011 Floods in Thailand. In F. Gemenne, P. Brücker, & D. Ionesco (Eds.), The State of Environmental Migration 2011 (p. 146). Institute for Sustainable Development and International Relations, International Organization for Migration.

Rigg, J., & Salamanca, A. (2009). Managing risk and vulnerability in Asia: A (re)study from Thailand, 1982-83 and 2008. Asia Pacific Viewpoint, 50(3), 255–270. http://doi.org/10.1111/j.1467-8373.2009.01399.x

Rigg, J., Salamanca, A., & Parnwell, M. (2012). Joining the Dots of Agrarian Change in Asia: A 25 Year View from Thailand. World Development, 40(7), 1469–1481. http://doi.org/10.1016/j.worlddev.2012.03.001

Sakdapolrak, P., Naruchaikusol, S., Ober, K., Peth, S., Porst, L., Rockenbauch, T., & Tolo, V. (2016). Migration in a changing climate. Towards a translocal social resilience approach. Erde, 147(2), 81–94. http://doi.org/10.12854/erde-147-6

Sakulsri, T., Phlainoi, S., Pattanakiat, S., & Punpuing, S. (2015). Geographic Information System for Flood Hazard Area Delineation and Estimation of At-Risk Households at the Community Level : A Case Study of Salaya Sub-District , Nakhon Pathom Province, 23(2), 168–179. http://doi.org/10.14456/jpss.2015.12

Saraswat, C., Kumar, P., & Mishra, B. K. (2016). Assessment of stormwater runoff management practices and governance under climate change and urbanization: An analysis of Bangkok, Hanoi and Tokyo. Environmental Science and Policy, 64, 101–117. http://doi.org/10.1016/j.envsci.2016.06.018

Sophonpanich, W. S. (2011). Flooding in Thailand : flee , fight or float.

Sutherland, C., Scott, D., Brooks, S., & Guy, H. (2012). Lay knowledge of risk: exploring the "riskscapes" of South Durban communities. In L. Bloemertz, M. Doevenspeck, E. Macamo, & D. Müller-Mahn (Eds.), Risk and Africa: Multi-disciplinary Empirical Approaches (pp. 47–86). Wien: Lit Verlag.

Sutherland, C., Scott, D., Brooks, S., & Guy, H. (2012). Lay knowledge of Risk: Exploring the "Riskscapes" of South Durban Communities. In L. Bloemertz, M. Doevenspeck, E. Macamo, & D. Müller-Mahn (Eds.), Risk and Africa: Multi-disciplinary Empirical Approaches (p. 271). Wien: Lit Verlag.

Takeuchi, K. (2001). Increasing vulnerability to extreme floods and societal needs of hydrological forecasting. Hydrological Sciences Journal, 46(March 2015), 869–881. http://doi.org/10.1080/02626660109492882

Thai Studies Symposium. (2016). Thailand In Comparative Perspective: An International Symposium - Southeast Asia Centre - The University Of Sydney. Retrieved from Sydney.edu.au

Thailand Flood Crisis Information Map. (2011). Mahidol Univ orders evacuation of staff and students as water swamps nearby areas. Retrieved October 25, 2016, from

http://de21.digitalasia.chubu.ac.jp/floodmap/reports/view/644%0A

UN-Habitat. (2011). Cities and Climate Change: Global Report on Human Settlements 2011. Global Report on Human Settlements. http://doi.org/10.1787/9789264091375-en

Wachinger, G., Renn, O., Begg, C., & Kuhlicke, C. (2013). The risk perception paradox-implications for governance and communication of natural hazards. Risk Analysis, 33(6), 1049–1065. http://doi.org/10.1111/j.1539-6924.2012.01942.x

Westing, A. H. (1992). Environmental Refugees: A Growing Category of Displaced Persons. Environmental Conservation, 19(3), 201–207. http://doi.org/10.1017/S037689290003099X

World Bank. (2009). Climate Change Impact and Adaptation Study for Bangkok Metropolitan Region. World Bank.

World Bank. (2012). Thai Flood 2011: Rapid Assessment for Resilient Recovery and Reconstruction Planning. Bangkok: World Bank. Retrieved from https://www.gfdrr.org/sites/gfdrr/files/publication/Thai_Flood_2011_2.pdf

Translocal Resilience Project
WORKING PAPER No. 6

#Evidence

Migrants at Risk

Responses of Rural-Urban Migrants to the Floods of 2011 in Thailand

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About the project Migrants at Risk

The exploratory project "migrants at risk" adresses the question of how vulnerable rural-urban migrants in the greater Bangkok Metropolitan Area deal with urban natural disasters. The project focuses on the worst floods Thailand suffered in half a century. In 2011, excessive rainfalls and subsequent dam breaches inundated six million hectares of land and affected more than 13 million people. Especially Bangkok, the main destination for internal migrants and the "bottleneck" of the flood water coming from the north, was highly impacted. Based on qualitative interviews carried out in the Greater Bangkok Metropolitan Area the project focuses on the experiences of rural-urban migrants with the floods of 2011. It seeks to understand coping strategies, the relevance of translocality in the context of natural disasters, adaptation strategies to future floods and the interpretation and relevance of the floods in the light of previous experiences in the place of origin.

About the TransReProject

Our research group "Environment. Migration. Resilience" offers a fresh perspective on the environment-migration nexus. It starts from the assumption that, regardless of the accuracy of the projections of future environmental changes, migration is already occuring and will continue to be a major dynamic of global change. We seek to interrogate how migration-induced translocal relations alter the environment and the capacity to deal with environmental changes in the places of origin of migrants.

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